GOVERNMENT OF INDIA
AGRICULTURE AND FARMERS WELFARE
LOK SABHA

UNSTARRED QUESTION NO:3137
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Research on Agricultural Technology
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Will the Minister of AGRICULTURE AND FARMERS WELFARE be pleased to state:

(a) the steps taken by the Government for the purpose of agricultural research in the country;

(b) whether any advances/achievements in agricultural technology have been made in any of the agricultural research institutes in the country during the last three years, if so, details thereof;

(c) whether these advances have been adopted by farmers in the country, if not, the reasons therefor; and

(d) the steps taken by the Government to import agricultural technology from other countries?

Answer

MINISTER OF STATE IN THE MINISTRY OF AGRICULTURE AND FARMERS WELFARE
(SHRI SUDARSHAN BHAGAT)

(a) The agricultural research in the country is primarily undertaken by the Indian Council of Agricultural Research (ICAR), which serves the technology, and information needs the country. With 102 ICAR research institutes, (including 4 deemed universities), 11 Agricultural Technology application Research Institutes (ATARIs) and 69 Agriculture Universities (including 3 Central Agricultural Universities and 5 Universities with Agriculture Faculty) spread across the country, National Agriculture Research System (NARS) is the largest national agricultural research and education system in the world. In order to assess and demonstrate the production potential of agricultural technologies and farm practices on farmer's field the ICAR has established a network of 668 Krishi Vigyan Kendras (KVKs) district-wise in the country aiming at assessment and demonstration of technologies/ products and its dissemination through number of extension programmes including training of farmers to update their knowledge and skill. The system has developed excellence in several frontier areas of agricultural sciences in terms of technology generation and dissemination, and human resource development that have contributed significantly towards spectacular growth of Indian agriculture. The research programmes under the umbrella of the ICAR are designed and undertaken for harnessing power of science that ensures food, nutrition and livelihood security for all. It has also played a major role in promoting excellence in higher agricultural education. NARS is engaged in cutting-edge science and technology development, and the contributions made by NARS are widely acknowledged both within the country and outside.

(b) & (c): Through the adoption of the improved varieties and the agro techniques, the production and productivity over past decades has registered a phenomenal growth.

1. The efforts of NARS under the aegis of ICAR have led to the release of 463 high yielding crop varieties/ hybrids including 251 cereal crops, 74 of oilseeds, 63 of pulses, 36 of fibre crops, 27 of forage crops and 12 of sugarcane during the last three years (2014-16). By adopting a path of science and technology led growth of its agriculture, India has reaped dividends in the form of a strong, self-reliant and resilient food security situation and the productivity of these crops has also increased positively over the years.

2. In the area of horticulture 314 improved varieties, 136 hybrids, 337 vegetable production technologies, 211 Integrated Pest Management and 167 seed production technologies have been developed. The improved varieties/ hybrids of vegetables developed are not only able to give 20-25 per cent higher yield but are also resistant to important pests & diseases.

3. In fisheries, a major breakthrough was achieved in breeding and seed production of the milkfish (Chanos chanos), in captivity, for the first time in country. The fish species is highly suited for culture in different salinity in brackish water and inland saline ponds. Round the year seed availability of Indian major carps was achieved through multiple breeding.

4. In animal sciences, 3 strains of the poultry viz. Kamrupa a multi-coloured bird suitable for rural poultry production in assam; Narmadanidhi an improved variety of chicken for Vindhya region and Jharsim a dual purpose variety of chicken to be reared in Jharkhand area were developed and distributed among the farmers. Major breakthroughs were also achieved in buffalo cloning with the production of cloned calves Lalima and Rajat by Hand Guided Cloning Technique.

5. In the area of Natural Resources Management also, following key technologies have been developed by ICAR during past 3 years:

? Bio-engineering measures of soil & water conservation to check water erosion and enhance productivity and profitability of degraded lands.
? Reclamation technology and salt tolerant varieties of rice, wheat and mustard for rehabilitation of lands affected by salinity and

sodicity.
? Subsurface Drainage for Management of Waterlogged Saline Soils
? Resource conservation technologies (RCTs) to conserve natural resources and save expenditure on inputs (fertilizers, water), labour, and energy besides mitigating adverse impact of climate change.
? Biofertilizers to supplement costly chemical fertilizers.
? Developed digital soil test kit (Mini Lab/Mridaparikshak).
? Technological backstopping to promote organic farming in the country.
? Integrated Farming System(IFS) models
? Multipurpose Rubber Dam for Water Harvesting in Watersheds

6. In farm mechanization, facilities in the advanced areas of sensor based precision agriculture, real-time input management, decision support systems, computerized databases, web-based applications, non-destructive quality evaluation, machine vision applications in agriculture, renewable energy applications, protected cultivation, storage, post-harvest processing and value addition of agricultural commodities etc. have been developed and also established around 45 agro processing centres (APCs) in production catchment, for processing and value addition to farm produce. The details of the key technologies in agricultural engineering developed and commercialized during last three years are given below:-

? Beetroot Powder making technology
? Mechanized system for popping and decortications of makhana seeds
? Cryogenic spice grinding system
? Ginger processing technology (Dried ginger flakes, sweetened flakes, Powder, and Ginger Paste)
? Technology for minimal processing of vegetables
? Pearl millet based composite extrudates and pasta
? Groundnut flavoured beverage, curd and paneer
? Process of manufacturing mix for ready to constitute makhana kheer
? Knowhow for construction of ICAR-CIPHET Evaporatively Cooled Storage Structure (5-7 tonne capacity)
? Minimal Processing of Vegetables
? A process of separating a compound containing allylisothiocynate from mustard seed
? Process for making beetroot shreds and powder
? Potato Peeler cum Washer
? Low fat meat emulsion and process for making the same
? Processing of Aonla for manufacturing of value added products
? Groundnut flavoured beverage, curd and paneer
? Dried onion flakes and powder
? Process for making green chili puree & powder

7. In the area of front line extension of various Agricultural Technologies amongst farming community and the state line departments, Krishi Vigyan Kendras (KVKs) are playing a pioneering role. Due to the training programmes conducted by KVKs on improved technologies related to agriculture and allied fields, have benefited the farmers all over the country, both in terms of increased crop production and improved farm income. The training programmes also resulted in entrepreneurship development through agriculture related enterprises among the rural youth and farmers, viz. nursery management, protected cultivation of flowers and vegetables, goatry, diary management, poultry farming, sericulture, production of vermicompost etc. The successful technological interventions identified by KVKs through on-farm testing and frontline demonstrations are being up-scaled for the spread of the technologies to large number of farmers in the district by the respective KVK and also organizing the extension activities like technology week in the demonstration farm of KVK for exposure of farmers to the improved technologies of agriculture.

(d) The Government is not focusing on importing the Agricultural from other countries. However, the ICAR has developed research collaborations with many agriculturally advanced countries to integrate the advances made in various frontier areas of Agricultural Research in these countries to benefit our country. In addition, strong collaborative programmes in various advanced areas of agricultural research have also been developed with the CGIAR based Institutions working in the country.

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